MIDDLE EAST OIL

by

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Easing of crisis conditions in the Middle East has relieved in part, but only in part, the anxiety of Western governments over possible interruption to the flow of oil from a region which holds the bulk of the free world's petroleum reserves.[1] The British-French invasion of Egypt in 1956, after President Gamal Abdel Nasser's nationalization of the Suez Canal, showed that Great Britain and France were ready to fight to assure themselves of continued access to Middle East oil. The immediate dispatch of U.S. Marines to Lebanon and of British paratroopers to Jordan, after the successful nationalist revolt in Iraq in mid-July, seemed to show that the United States now attaches the same importance as its North Atlantic allies to maintaining the flow of Mideastern oil.

The new regime in Iraq lost no time in seeking to dispel the fears of Western governments—thus to ward off the danger of direct intervention in the country's affairs. Baghdad radio announced on July 18 that Iraq oil would continue to move to western markets without interruption. Premier Abdul Karim el-Kassem declared, July 22, that "Oil is as important to us as it is to the West and to world economy." Iraq's new delegate to the United Nations, Hashim Jawad, stated in New York the same day that there would be no nationalization of the petroleum industry and that all contracts with foreign interests would be respected. However, the revolutionary regime is already pressing for more oil production, for more local development of by-products, and above all, for a larger share of the large profits earned by the oil companies.

West's Vital Interest in Mideast Resources

The concern of Western governments is explained by the fact that more than 70 per cent of the oil reserves outside Communist control lie in the region around the Persian

[1] An Associated Press dispatch from Port Said, Sept. 2, reported a 25 per cent increase during August in the number of tankers passing through the Suez Canal, indicating that West European countries were building up their oil stocks against a possible new emergency.

Gulf. Since World War II, "the center of gravity of world oil reserves," as one American oil expert puts it, "has moved from this continent plumb into the Middle East." [2] Whereas 20 years ago the United States had 59 per cent of proved free world oil reserves and the Middle East only 17 per cent, today the United States has only 14 per cent and the Middle East 71 per cent.[3] Moreover, during 1957, for the first time in 14 years, U.S. production exceeded new discoveries, so that the country's proved oil reserves declined from 30.4 billion to 30.3 billion barrels. In the Middle East, on the other hand, exploration enlarged known oil reserves by about 15 per cent, to nearly 170 billion barrels.

Sizable oil production in the Middle East dates only from World War II. In 1939, the region produced only about 300,000 barrels of oil a day. By the end of the war six years later, production had not quite doubled. In 1950, however, 1.8 million barrels of oil were being produced daily and by 1957 Mideast output had risen to almost 3.5 million barrels a day.

Oil can be produced more easily and more cheaply in the Middle East than anywhere else in the world, because geological formations have trapped vast pools of petroleum relatively close to the surface of the earth. The average Middle Eastern well produces more than 5,000 barrels a day, whereas the average yield per well amounts to only 200 barrels a day in Venezuela and to only 12 barrels a day in the United States.

This country's needs for Middle Eastern oil have been temporarily lost to sight by the accumulation of excess supplies of western oil as a result of the recent business recession and of increased production during the Suez crisis. Despite the present oversupply many observers believe that in the long run this country cannot get along without Middle East oil. The United States has had no major oil discoveries since 1954. Yet domestic consumption increased about 5 per cent annually from 1953 to 1956 and is expected to keep growing in step with the gross national product. To satisfy the increasing demand at an economic price, more and more American oil companies are turning

[2] Leonard M. Fanning, *The Shift of World Petroleum Power Away From the United States* (1958), p. 2.

[3] "Proved reserves" means that part of known reserves which is recoverable by methods currently in use and under current economic conditions. Figures on foreign oil reserves used in this report are those of the *Oil and Gas Journal*; estimates of domestic reserves are those of the American Petroleum Institute.

to foreign areas, including the Middle East, to supplement dwindling domestic resources.

For Western Europe oil resources of the Middle East are of vital importance. About 85 per cent of European oil requirements are at present met from that area. Because Middle Eastern oil was closer and could be bought without dollar currency, postwar European oil demands were deliberately rerouted under the Marshall Plan from traditional Western Hemisphere sources to the Middle East. European consumption of oil is expected to increase at a rate of about 12 per cent a year—little of which can be supplied from Europe's meager reserves. Although most of the Continent's oil needs were met from the Western Hemisphere while the Suez Canal was blocked in 1956 and 1957, European strength, and perhaps even independence, is virtually dependent on continued access to Middle Eastern oil.

Foreign Exploitation of Oil of Middle East

Oil production in the Middle East is concentrated in the hands of large international oil companies, although an increasing number of smaller, independent companies are entering the field. The companies hold long-term government concessions for exclusive exploration and exploitation of petroleum resources within specific areas. Americans are now believed to own nearly 60 per cent of the total financial interest in the concessions and the British nearly 30 per cent—as compared with about 50 per cent British ownership and 35 per cent U.S. ownership in 1946.[4] Anglo-Dutch and French companies control some concessions, and Italian, Japanese, and West German companies have recently come on the Middle Eastern scene.

In return for exclusive rights, the oil companies pay a variety of rents, royalties, and taxes to the governments granting the concessions. Since the Arabian American Oil Co. set the current pattern in an agreement with the king of Saudi Arabia in 1950, most agreements have provided for a 50-50 split of profits.

For numerous reasons, including low production costs, profits from Middle Eastern oil operations are very substantial. The United Nations Economic Commission for Europe has pointed out that in 1952 four-fifths of the price

[4] "Oil Production," *Middle Eastern Affairs*, February 1958, p. 76.

CONTROL OF MIDDLE EAST OIL AREAS

Country	Principal concession held by:	1957 daily production *(thousand bbls.)**	Proved reserves *(thousand bbls.)**
Bahrein:	Bahrein Petroleum Co.	32	200,000
	50% each: Standard Oil (Calif.); Texas Co.		
Iran:	Iranian Oil Participants (under pact with National Iranian Oil Co.)	725	32,000,000
	40% British-Petroleum Co.		
	14% Royal Dutch-Shell		
	7% each: Gulf Oil Corp.; Socony-Mobil Oil Co.; Standard Oil (Calif.); Standard Oil (N.J.); Texas Co.		
	6% Compagnie Francaise des Petroles		
	5% Iricon Agency Ltd. (owned by 9 smaller U.S. companies)		
Iraq:	Iraq Petroleum Co.	440	25,000,000
	23.75% each: British Petroleum Co.; Royal Dutch-Shell; Compagnie Francaise des Petroles; Near East Development Co. (latter 50% Socony-Mobil, 50% N.J. Standard)		
	5% C. S. Gulbenkian estate		
Kuwait:	Kuwait Oil Co.	1,110	60,000,000
	50% each: British Petroleum Co.; Gulf Oil Corp.		
Neutral Zone:		65	5,000,000
	Kuwait share: American Independent Oil Co. (owned by 10 smaller American companies)		
	Saudi Arabian share: Pacific Western Oil Co.		
Qatar:	Iraq Petroleum Co. subsidiary	136	1,750,000
Saudi Arabia:	Arabian American Oil Co.	990	45,000,000
	30% each: Standard Oil (Calif.); Standard Oil (N.J.); Texas Co.		
	10% Socony Mobil Oil Co.		
	Totals	3,498	168,950,000

* One barrel equals 42 U.S. gallons.

SOURCES: *Oil and Gas Journal*, Dec. 30, 1957, p. 121, and Arabian American Oil Co. *Middle East Oil Development* (March 1956), p. 41.

of a barrel of Middle Eastern crude represented profit.[5] Operations in the region as a whole are believed to produce combined profits of around a billion dollars a year for the companies and another billion for the countries granting the concessions.

DEMAND FOR NATIONALIZATION OF OIL RESOURCES

Many native nationalist leaders resent payment to foreigners of even 50 per cent of the profits gained from exploiting the natural resources of the Middle East and de-

[5] U.N.E.C.E., *The Price of Oil in Western Europe* (1955), p. 15.

mands for nationalization of oil resources are heard with increasing frequency. Although nationalization of the Iranian oil industry in 1951 failed of its purpose when foreign markets were closed to Iranian oil, Nasser's successful taking over of the Suez Canal in July 1956 gave new impetus to agitation for oil nationalization.

The Soviet bloc has no present need for Middle Eastern oil and could probably never replace the West as a major market—especially as it is expanding production from its own sizable oil reserves (an estimated 26.6 billion barrels). However, if access to Middle East oil were controlled by either Moscow or Cairo, they would be in a position to put pressure on Western Europe at will. While Nasser was in Moscow in April, the Soviet journal *Industrial Economics* suggested that whenever the Arabs wished to put an end to Western exploitation of their oil resources, experienced Communist oil technicians would be ready to furnish the necessary know-how.

Pressure for New Profit-Splitting Provisions

A more immediate threat to foreign oil interests than nationalization is a growing pressure from Middle Eastern countries for a larger part of the oil profits. Fifty-fifty may have been a fair split when oil reserves were still untested, Middle Easterners argue, but now that the chances of failure have been reduced, the possessor countries should have a larger share. In addition, they want more refineries built within the area so that shared profits will come not only from production but also from refining and if possible from marketing of the oil.

During 1957 several new concessions were granted which in effect breached the 50-50 line for dividing profits. Enrico Mattei, head of the Italian national oil company, concluded an agreement with the National Iranian Oil Co. last year that has been widely described as providing for a 75-25 split. National Iranian became half-owner of a new joint enterprise. The combined operation is to pay the standard 50 per cent royalty to the Iranian government, but its own 50 per cent share will be divided equally between the Italian interests and National Iranian, which is itself owned by the Iranian government. Thus Iran will get 75 per cent of the total profits.

A different type of agreement with equally far-reaching implications was concluded last December between Saudi

Arabia and the Japanese-owned Arabia Oil Co. In return for exclusive rights to exploit Saudi Arabia's interest in oil in the offshore area of the Neutral Zone,[6] the Japanese agreed to pay 56 per cent of the net profits and to make 10 to 20 per cent of the company's shares available for purchase by Saudi Arabia at par after discovery of oil. In an agreement reached later with the Sheik of Kuwait, covering his interest in the Neutral Zone, the Japanese agreed to pay 57 per cent of their net profits to the Sheik.

Significance of Latest Oil Concessions

The unique feature of the agreement with Saudi Arabia is that the 56 per cent royalties will be paid not only on the profits from crude oil production, but also on profits from refining and sales wherever they take place. By giving the government some control over the wholesale and retail marketing of oil, the agreement may lessen the possibility of an effective boycott against Saudi oil in case of eventual nationalization.

Western observers have pointed out that the areas covered by the new concessions are almost all offshore, therefore costly to develop. Also that the companies involved are smaller, have less ready capital, and far less experience in Middle Eastern operations than most of the others in the region. Thus returns may actually prove to be smaller per barrel than under the older 50-50 division. But many Arabs and Iranians are pleased with the new agreements, not only because they give the host governments a larger percentage share, but also because they envisage national partnership in the venture. "The arrangement satisfies a psychological need strongly felt in Iran and elsewhere in the Middle East," one British writer has said.[7] The first American company to break the 50-50 line was Pan American Petroleum, a subsidiary of Indiana Standard, which signed a so-called 75-25 agreement with National Iranian in April 1958.

[6] The two neutral zones between Kuwait and Saudi Arabia, both largely uninhabited desert, were delimited in 1922 by Sir Percy Coxe, British Resident in the Persian Gulf, when the two states could not agree on boundaries.

[7] W.D.P., "New Oil Agreements in the Middle East," *World Today*, April 1958, p. 140.

Western Development of Mideast Oil

EXISTENCE OF OIL in the Middle East has been known since Biblical times, when surface seepage fed perpetual fires, but development by foreign companies did not begin until 1912 when oil was first exported from Persia (now Iran). Commercial production in Iraq dates from 1927, on the island of Bahrein from 1933, and in Saudi Arabia from 1938. Kuwait, now believed to have the largest oil reserves in the world, did not join the ranks of major oil-producing countries until 1946.

The first major oil concession was granted by the Shah of Persia to William K. D'Arcy, Australian mining millionaire, in 1901. The Anglo-Persian Oil Co. was organized in 1909 to exploit the concession. In 1914, the British government bought a 51 per cent interest in the company for $10 million. The deal was engineered by Winston Churchill, then First Lord of the Admiralty, who was preparing to convert the Navy from coal to oil and wanted control over resources that would supply at least a part of its oil needs. About the same time the British government gained control of oil rights in Iraq, then part of the Turkish empire, through participation in the Turkish Petroleum Co.[8]

Britain strengthened her hold in the area after World War I. Under the San Remo Agreement, signed in April 1920, the Turkish empire was divided: the territory now Iraq became a British mandate; Syria and Lebanon became French mandates; Saudi Arabia became an independent state.

The Turkish Petroleum Co. kept its concession in Iraq, but Turkish and German holdings in it were turned over to a French company. Through Anglo-Iranian and Royal Dutch-Shell, British interests held 75 per cent of Turkish Petroleum, French interests 25 per cent. The French government agreed to build oil pipelines through Syria and Lebanon to bring Iraqi and Iranian oil to the Mediterranean and to erect refineries for its processing.

Acquisition of Interests by U.S. Companies

British and French monopolization of Middle Eastern oil concessions was viewed with alarm in the United States.

[8] See "Oil of the Middle East," *E.R.R.*, 1947 Vol. I, pp. 315-320.

American oil production had been greatly expanded to fill World War I needs and Washington was worried over the rapid depletion of domestic reserves. A month after signing of the San Remo Agreement, the State Department protested against exclusion of American oilmen from the area. After eight years of controversy, Anglo-Iranian agreed in 1928 to transfer one-half of its interest in Turkish Petroleum to several American companies. The company thus formed, renamed Iraq Petroleum, operated under a 75-year concession covering most of Iraq.

The British and French monopoly of Middle East oil was challenged when Standard Oil of California found oil on the island of Bahrein in 1932. The next year the American company acquired a 60-year concession for oil exploitation in 360,000 square miles of eastern Saudi Arabia. To provide markets for Bahrein oil as well as possible Saudi Arabian discoveries, the company in 1936 sold a half interest in both ventures to the Texas Co. Two years later, the joint group thus set up—later to be known as the Arabian American Oil Co. or Aramco—struck oil at Dammam.[9] The following year, King Ibn Saud, father of the present King Saud, granted Aramco a supplemental concession covering 90,000 square miles at the northern and southern ends of the original concession.

Outbreak of war in 1939 temporarily halted rapid expansion of the Middle East oil industry. After Italy joined Germany as a belligerent, transportation of oil through the Mediterranean became impossible. Iraq production was greatly curtailed, although production of Iranian oil, to be shipped by tankers through the Persian Gulf, increased.

Aramco's Expansion of Saudi Arabian Output

Aramco was anxious to secure its position in the face of German, Italian, and British wartime pressures on King Ibn Saud. It offered in 1941 to sell petroleum products to the U.S. government at a reduced price if the United States would advance $6 million annually to the king.[10] Two years later Aramco tried to sell what amounted to a part of its

[9] The joint company was first known as the California Arabian Standard Oil Co. Its name was not changed to Arabian American until 1944, but for convenience that name will be used throughout this report.

[10] Ibn Saud received the money indirectly through a U.S. loan to Britain of $425 million, out of which the British advanced $22 million to him in 1941 and 1942. Direct U.S. lend-lease to Saudi Arabia was instituted in 1943, largely as a result of Aramco persuasion.

underground reserves to the United States government.

During the last years of the war Aramco built a refinery at Ras Tanura with a capacity of 50,000 barrels a day. It enabled the company to more than double production between 1944 and 1945.[11] To meet Aramco's pipeline needs, Standard of California and the Texas Co. formed the Trans-Arabian Pipeline Co. Construction of the more than 1,000-mile system was completed in 1950; it can carry 350,000 barrels a day from the Persian Gulf to Sidon in Lebanon. In 1948 New Jersey Standard and Socony Mobil became partners in Aramco. Besides providing additional capital, the newcomers offered wide marketing facilities for the rapidly increasing oil output. Aramco's expanded facilities placed the company in a favorable position to aid in the emergency which arose later in Iran.

Nationalization of British Interests in Iran

Many Iranians were reluctant after the war to allow continued Western exploitation of the country's principal resource. Anglo-Iranian negotiated an agreement with the Teheran government in 1949 that would have netted Iran at least $25 million more than the $92.4 million it actually received in that year, plus retroactive payments and increased future royalties. When the agreement was submitted to the Iranian parliament, however, the government was forced to withdraw it in the face of growing popular demands for nationalization. A British offer to split the profits 50-50, as Aramco had done in Saudi Arabia about the same time, also was spurned.

Encouraged by a new premier, Mohammed Mossadegh, the Majlis passed a nationalization law April 30, 1951. The British refused to recognize one-sided abrogation of what they termed a contract. They raised the issue before the U.N. Security Council and the International Court of Justice in 1951, but without success.[12]

American officials took the view that the Iranian government had the right to nationalize the oil company, but that it must pay equitable compensation to the owners. American concern over the crisis was motivated primarily

[11] Enlarged in 1950 and subsequently, the Ras Tanura refinery is now the third largest in the Middle East. Abadan refinery in Iran, with a capacity of 514,000 barrels a day, is the largest.

[12] See "Oil Nationalization," *E.R.R.*, 1951 Vol. II, pp. 753-759. The Security Council agreed to postpone discussion until the International Court had made its decision. The Court ruled in June 1952 that it was without jurisdiction in the dispute. It held that the original agreement was a concession granted by the Iranian government to the Anglo-Iranian Co., and not, as the British contended, a bilateral contract or treaty with the British government.

by fear lest any disorders in the area redound to Communist benefit, but throughout the crisis the Soviet Union played no active role. When Mossadegh refused to consider any later British proposals for compromise or compensation, Washington officials lost sympathy with the Iranian government.

What finally brought Mossadegh's downfall was the economic strangulation that followed cessation of Anglo-Iranian operations. Iran had an ambitious seven-year economic development plan which was entirely dependent on oil revenues. When British oilmen left and British tankers refused to load Iranian oil, the Iranians could neither produce more oil nor sell the oil on hand. Moreover, President Truman refused to approve an American loan to the bankrupt regime until Iran had reached some agreement with the British.

After Mossadegh was driven out of office in August 1953 the new government was ready for compromise with Anglo-Iranian. The principle of nationalization was retained and a government company (National Iranian) was set up to develop resources in areas of Iran outside the original concession. But under an agreement reached in April 1954, the main concession was to be operated by a consortium of international oil companies ostensibly under contract with the government company. Other companies were invited to join the consortium both to mitigate Iranian resentment against the British and to provide new markets for Iranian oil. They reportedly agreed to pay British Petroleum (successor of Anglo-Iranian) nearly $6 billion for their 60 per cent share in the consortium.

Mideast Gains from Oil Exploitation

FOREIGN OIL COMPANIES have generated new wealth throughout the Middle East—for their employees, for innumerable contractors and purveyors of local services, and for various governments. But the new wealth has brought new tensions. In an era of growing nationalism, the native peoples have come to resent the powerful place in their affairs occupied by large foreign corporations. A former Anglo-Iranian oil official has written:

> The appeal of economic nationalism in a country like Iran is psychological rather than material, and is not to be deflated by economic arguments. . . . Partly it is a fear of becoming economically and technically dependent on western industry, which it is felt must hamper and slow down the development and expansion of Iran's own industries. This is the natural reaction of a people that still suffers from a "colonial" complex, that has to look back on a century or more of western economic penetration, that has bitter memories of the old-style concessions, as vividly alive in the popular mind as they are dead in reality.[13]

Every foreign oil company has had to deal with the vexing question of how many native workers are to be hired, for virtually every oil-producing country requires that as many jobs as possible be given its own qualified nationals. The companies have instituted large-scale training programs to prepare local people for skilled jobs and large numbers of the trainees are employed in lower echelons throughout the industry.

> Training schemes offer tangible evidence that the companies are trying to fulfill their obligation to develop local talent. . . . The fact that schools are built, instructors hired, and students enrolled does not, however, necessarily mean that such training schemes are automatically successful in this purpose. . . . [It is] the firm but only privately expressed conviction on the part of many western oil men . . . that training is a "myth," in the sense that it is impossible to raise backward people to a level of industrial competence in less than two or three generations.[14]

Until the level of competence has been raised, however, Middle Easterners will probably continue to be jealous of the highly trained, highly paid foreign experts who supervise oil operations in their countries.

Economic Development Plans in Iran and Iraq

For the Middle Eastern governments, oil has brought large, sometimes embarrassingly large, riches. Uses to which the oil money has been put vary widely. Iran and Iraq, which both have parliamentary governments, have tried to apply oil revenues to constructive ends. Iran's second seven-year plan, instituted in 1955, calls for expenditures of more than $1 billion. The plan is aimed primarily at improving transportation, communications, agriculture, and irrigation; industrial development and social services account for less than one-third of annual spending.

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[13] L. P. Elwell-Sutton, "Nationalism and Neutralism in Iran," *Middle East Journal*, Winter 1958, p. 28.

[14] David Finnie, "Recruitment and Labour: Middle East Oil Industry," *Middle East Journal*, Spring 1958, pp. 140-141.

OIL REVENUES AND POPULATION OF MIDDLE EAST STATES, 1957

Producing Area	Estimated oil revenue	Population
Bahrein	$ 8,000,000	120,000
Iran	252,000,000	19,000,000
Iraq	137,000,000	6,600,000
Kuwait	310,000,000	205,000
Qatar	45,000,000	17,000
Saudi Arabia	290,000,000	7,000,000
	1,042,000,000	32,942,000

SOURCE: Department of Commerce; *New York Times*, July 20, 1958.

Main obstacles to best use of oil royalties are shortages of skilled and experienced personnel, concentration of landholdings among a few wealthy families, and considerable leakage of funds through corruption.

The Iraq development plan, for which 70 per cent of the oil revenues have been reserved since 1950, has been viewed by western economists as one of the best in the Middle East. Flood control and irrigation projects have first place. Two large dams, one on the Tigris River and one on the Euphrates, were completed in 1956 at a cost about equal to the flood damage of a single year. Nearly four million additional acres are ultimately to come under irrigation. However, U.N. experts have warned that full benefit of the improvements will not come immediately.

> Most of the large funds so far invested for agricultural development have not yet paid dividends, partly because many of the projects are not completed, partly because construction of dams, reservoirs and main irrigation canals must be followed by construction of field canals, resettlement of the population, rural housing, sanitation projects, extension work, and dissemination of expert knowledge before they can result in a substantial increase in production.[15]

The new Iraqi regime has promised to improve on its predecessor's work. Its minister of development announced, July 27, that he would introduce new projects "which directly benefit the people" and which would employ as many qualified Iraqis as possible. "From now on," he said, "we will think in terms of months instead of years." Iraq's new premier indicated the same day that there might soon be a redistribution of land.

[15] United Nations Department of Economic and Social Affairs, *Economic Developments in the Middle East, 1956-1957* (1958), p. 41.

DISPOSITION OF OIL REVENUES BY ARAB MONARCHS

The other oil-producing areas—Kuwait, Bahrein, Qatar, and Saudi Arabia—present a contrast to Iran and Iraq. In all of them the oil revenues are the personal property of the ruler. Under British influence[16] the sheiks of Kuwait, Bahrein, and Qatar have devoted most of their revenues to providing social services for the people. The Sultan of Kuwait, now one of the richest men in the world, invests a large part of his annual revenues, usually about $150 million, in London. The remainder has been used to construct modern schools, houses, hospitals, roads, government buildings, port facilities, and other improvements around Kuwait town where most of the population lives.

Kuwait has no natural resources other than oil to develop. Even fresh water must be distilled from salt water. A distillation plant was recently completed at a cost of $36 million and plans are afoot for piping fresh water from Iraq. Most Kuwaitis appear to be satisfied with a system which now provides them with excellent schools and health facilities completely free of charge. However, the many Egyptians and former Palestinians who serve as teachers in the new schools are reportedly teaching the younger generation to look upon Nasser as the real leader of the Arabs. Recent meetings of the Sheik of Kuwait and his deputies with Nasser have been viewed with alarm in Britain.

In Saudi Arabia, most observers agree, the oil revenues have not been wisely spent. A study of the 1952-53 Saudi budget, one of the few that have been made public, indicated that nearly 20 per cent of the country's spending was for defense, 14 per cent for the royal household, 13 per cent for debt service, 10 per cent for internal security and subsidies to local chieftains—as compared with 22 per cent for general development including agriculture and only 5 per cent for health, education, social and religious services.[17] Despite his large income, King Saud is reported to be heavily in debt due to personal extravagances. Aramco has provided most of the welfare and community services

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[16] The sheikdom of Kuwait has been a British protectorate since 1899, when the sheik agreed not to lease or cede land to or enter any treaty with a foreign country without authorization of the British government. The sheikdoms of Bahrein and Qatar assumed their present status as British protectorates in 1880 and 1916, respectively, under the same conditions with an additional proviso that they maintain no contacts at all with foreign agents except with specific British consent.

[17] Benjamin Shwadran, *The Middle East, Oil, and the Great Powers* (1955), pp. 358-360.

ordinarily supplied by the state. The company reports that during 1957 it paid about $1.9 million in wages to Saudis and almost the same amount for additional benefits.

Educated Aramco workers and budding nationalists are highly critical of royal waste but whenever the King establishes some petty restriction for the company's foreign employees, like forbidding use of liquor, they applaud him for showing that he has the upper hand. When Saud supported Aramco by arresting leaders of a 1953 strike, the workers turned against him.

Pressures Affecting Access to Oil of Mideast

Middle Eastern rulers and governments depend on oil revenues to make good their promises of social betterment. For this reason some Western observers maintain that there is no real need to worry about a possible stoppage of Middle East oil, for the Middle East needs the revenue. In the words of *Fortune* magazine, "The Middle East must do business with the West, for only the West can use and pay for its oil." [18] But other analysts are less optimistic.

Walter J. Levy, State Department specialist on petroleum, pointed out last year that "Economic conditions, important as they are to the relatively impoverished countries of the area, become insignificant when confronted with political necessities or political pretensions." [19] He cited Syrian destruction of Iraq Petroleum pipelines in November 1956 as a case in point. To demonstrate their hostility to the British and French, after the Suez invasion, Syrians not only deprived their government of nearly a year's transit revenues but also jeopardized their chances of getting a new pipeline. The Egyptians blocked the Suez Canal to embarrass the West even though their own toll revenues were stopped. Iraq has refused since 1948 to allow any oil to pass through Israel even though the Iraq Petroleum pipeline to Haifa was operated profitably from 1934 to 1948.

[18] Gilbert Burck, "World Oil: the Game Gets Rough," *Fortune*, May 1958, p. 125.

[19] Walter J. Levy, "Issues in International Oil Policy," *Foreign Affairs*, April 1957, p. 458.

Means of Assuring West's Fuel Supply

THE political hazards attending Middle Eastern oil operations have led many western planners to look for alternatives to present reliance on oil from that region. Other transportation routes or methods, new sources of oil supply, even completely different methods of generating energy are being developed.

Blocking of the Suez Canal and cutting of the Syria pipelines in 1956-57 showed the need of alternate transportation facilities. Although oil production was not affected, tankers were not available in sufficient number to carry all the needed supplies around Africa, a route from 5,000 to 7,000 miles longer than by way of Suez. European nations were obliged to rely on direct shipments from the Caribbean area. Since these had to be paid for with dollars, the result was a serious drain on European dollar reserves.

The Organization for European Economic Cooperation warned, Jan. 13, 1958, that Europe must try to make possible future interruptions to the flow of Middle East oil more tolerable by 1) accumulating larger oil reserves in Europe; 2) developing more flexibility in means and routes of transport, and in refining operations; 3) further diversifying sources of supply; and 4) extending consultations between governments and oil companies.

Building of Supertankers and New Pipelines

Large tankers, able to carry enough oil to make the voyage around Africa economical, afford the easiest way of bypassing both the Suez Canal and vulnerable pipelines. During 1957 the amount of tanker tonnage on order or under construction doubled, to nearly 40 million deadweight tons. Eighty-four per cent of that construction was of vessels larger than 20,000 deadweight tons. Several giant tankers now in service are ships of nearly 84,000 tons, around 800 feet in length; one now under construction in Japan will exceed 100,000 tons. In the long run, the expanded tanker fleet and increased use of supertankers (over 29,000 tons) will reduce western dependence on present oil transit countries. The feasibility of atomic-powered submarine tankers, which would be faster than surface vessels, is now under study.

Plans for several new pipelines have been aired over the past year. Closest to realization is an Iranian plan to pipe oil from the Qum field through Turkey to Alexandretta on the Mediterranean. A contract to build the 930-mile, $500 million pipeline has been awarded to an American company, but actual construction may depend on a final testing of the reserves available at Qum.

Another proposal was offered last autumn by King Saud's oil adviser, Sheik Tariki. He suggested an all-Arab pipeline to carry oil from all the Persian Gulf states to the Mediterranean. But Iraqi opposition and lack of capital in the other countries have stalled the project. Plans of the Iraq Petroleum Co. for a pipeline that would pass through Turkey instead of Syria were killed when Iraq, with prodding from Cairo, insisted that Arab oil must not be carried through non-Arab lands. Arab ownership of oil pipelines might protect them from wanton destruction, but at the same time it would increase Arab control over western supplies.

New Methods of Oil Recovery; Oil From Shale

Increasing pressure for political unity or cooperation among the Arab countries has led oilmen to seek not only alternative methods of transportation, but also alternative sources of supply. Oil exploration is proceeding at a feverish pace all over the world. Quantitatively, the most important discoveries have been the oil fields of the Sahara which hold at least half a billion barrels of proved reserves. Smaller discoveries have been made in France, Germany, Canada and Sicily, as well as in the United States. Oilmen are convinced that considerably more oil will be found, although new reserves will probably not be as large or as accessible as those now known to exist in the Middle East.

The world's oil supplies will be expanded by new techniques of oil recovery. In a paper submitted to the congressional Joint Committee on Atomic Energy, Wallace E. Pratt, a noted geologist, indicated that even now ultimate U.S. reserves are appreciably larger than proved reserves:

> Our estimates of proved reserves . . . contemplate only the historical efficiency of recovery—an average of about 40 per cent of the oil in place. On this basis, 60 per cent of all the oil we have found over the life of the industry still remains in the ground. In the United States this unrecovered fraction already exceeds 160 billion barrels, and it grows larger with each new discovery. The industry is confident that technologic improvements . . . will

eventually bring to the surface tens of billions of barrels of this formerly unrecoverable oil.

In addition, the United States has more than 500 billion barrels of oil in the form of oil-bearing shales—mainly in Colorado, Utah, and Wyoming. When condensed under heat and pressure, the shale yields a thick liquid comparable to crude oil. Oil from shale has not yet been commercially produced because of prohibitively high production costs. However, the University of Denver Research Institute announced, July 10, that it had found an economical method of distilling oil from shale and declared that the product could be delivered on the West Coast at competitive prices.

Oil or its equivalent may one day be recoverable from tar sands, such as those at Athabasca, Canada, or even through the liquefaction of coal. One substitute for oil already being developed as a byproduct of the petroleum industry is natural gas, which is rapidly replacing coal and oil in house heating. Current proved reserves of natural gas in the United States are estimated at 247 trillion cubic feet.

For the United States these natural resources, and easy access to the as yet not fully developed resources of Latin America, mean that any stoppage of Middle Eastern oil would not be directly disastrous. Although the price might rise, the supply of oil or its substitutes would not be cut off. For Western Europe, however, there are fewer substitutes for Middle Eastern oil, because the Continent has only small oil reserves, a steadily diminishing supply of coal, and at the same time a rapidly increasing demand for more energy. Therefore Europeans and, above all, the British have taken the lead in experimenting with peaceful uses of atomic energy.

Nuclear Energy as Supplementary Power Source

Great Britain is proceeding with an atomic energy program which, it is hoped, will supply as much as one-half of Britain's electrical power needs by 1975. The European nations in Euratom (Belgium, France, Germany, Italy, Luxembourg, the Netherlands) are moving forward with their long-range target of 15 million kilowatts of installed nuclear capacity by 1967. Present electrical capacity of the six nations is about 60 million kilowatts. Congress has approved U.S. aid for the first stage of Euratom activities—

six new power reactors with a total capacity of one million kilowatts to be completed by 1963.

Recent atomic energy studies indicate that while nuclear power may supplement power generated by conventional fuels, it cannot altogether replace it. A National Planning Association report concluded in July 1958 that "substantial increases in requirements of solid, liquid, and gaseous fuels, as well as electric energy, besides the projected requirements for nuclear energy," were to be expected in the next 25 years. "Since no single energy source will be able to satisfy all of the projected needs, it follows that nuclear energy cannot be considered as providing, by itself, a long-run solution to our expanding energy requirements." [20]

A study by the Interior Department pointed out several years ago that the field in which atomic energy would first become economically practical — generation of electric power—accounted for only 2 per cent of U.S. annual petroleum consumption.[21] Even if atomic energy were developed to supply propulsive power for all railroads and ships, the petroleum industry would lose only 3 to 4 per cent of its current markets. Where most petroleum products are used —up to 45 per cent in the United States and a sizable proportion in Europe—is to fuel automobiles and aircraft. Utilization of atomic power in these areas appears remote.

The United States has encouraged European pioneering in atomic energy, recognizing that Europe can meet at least a part of its present and expanding fuel needs by means of atomic power as well as alternate oil supplies and transit routes. All these possibilities together would render any temporary interruptions in the supply of Middle East oil less crucial. Americans and Europeans agree that the more dependent they become on Middle East oil, the more the Middle Eastern countries will be tempted to use their oil as a political weapon instead of as an economic commodity capable of benefiting producing and consuming nations alike.

[20] Perry D. Teitelbaum, *Nuclear Energy and the U.S. Fuel Economy, 1955-1980* (1958), p. 87.

[21] Department of the Interior, "Impact of the Peaceful Uses of Atomic Energy on the Coal, Oil, and Natural-Gas Industries," *Peaceful Uses of Atomic Energy* (Report of Panel on the Impact of the Peaceful Uses of Atomic Energy to Joint Committee on Atomic Energy, January 1956), Vol. 2, pp. 86-88.